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Book Review

Neither Brain nor Ghost: A Nondualist Alternative to the Mind-Brain Identity Theory. Teed W. Rockwell. Cambridge, MA: MIT Press, 2005. 231 pages (including notes, bibliography, and index) plus an 11-page preface; 6 figures; ISBN 0-262-18247-5; \$36.00 cloth.

Teed Rockwell's *Neither Brain nor Ghost: A Nondualist Alternative to the Mind-Brain Identity Theory* (MIT 2005) is a welcome addition to the mind-body literature. Along with the philosophical contributions discussed below, Rockwell provides a valuable survey of recent developments in the relevant sciences, including a beautifully simple explanation of competing AI (artificial intelligence) strategies and techniques. If nothing else, the first three chapters summarizing recent developments in the sciences are worth reviewing for anybody working in the field, and the explanation of neural nets in the final chapter would be useful for any class addressing mentality. But the primary burden of the work is philosophical, and it is here that Rockwell makes his most interesting contributions. First, Rockwell makes a plausible case for the claim that assumptions of Cartesian materialism have contaminated much of the scientific and philosophical work in the area over the last fifty years (or longer). Second, in making this case, he also lays the groundwork for renewed attention to the "zombie problem" so derisively dismissed by Daniel Dennett (2005 and elsewhere) and others, for ignoring some of those irritating "brain in a vat" counter-examples, for abandoning or inverting the traditional understanding of the relationship between sentience and cognition, and for revitalizing the neglected pragmatist account of mind and the world. I will briefly outline the substance of Rockwell's book, then move on to discuss some of the philosophical contributions in more detail.

Summary. Rockwell begins with the claim that while we have for the most part abandoned Cartesian dualism, an unquestioned corollary assumption from Descartes' metaphysics still guides the work of philosophers and scientists alike: the assumption that the brain is the physical base of the mind. Rockwell refers to this position as "Cartesian materialism" and claims that it has led us woefully astray in both our investigations and our philosophizing.

Chapter 1 opens with a brief historical survey of the transition from dualism to behaviorism to the current options of functionalism and eliminative materialism, concluding that "The main thing that keeps both functionalism and eliminative materialism at loggerheads with each other is that each has embraced a slightly different form of Cartesian materialism, neither of which is essential to the basic program they both share" (9). He then touches on the development of the externalist position in philosophy of language (mentioning Putnam, Burge, Fodor, and Millikan), and notes that "even though these and many other thinkers are willing to locate verbalizable conceptual thought partly in the world, they are usually not willing to make the same step for feelings, sensations, and conscious

experience” (17). He concludes by making the claim that Andy Clark 1997, 1998 explicitly denies: that

‘Consciousness ain’t in the head.’ Most of the strongest objections against externalism can be best dealt with by completely rejecting the distinction between intentional mental processes and so-called raw feels. All experience is, I claim, completely and irreducibly intentional, and thus gets its meaning from relationships that the living self maintains with the outside world.” (17)

This is the first mention of his intriguing proposal that sentience and cognition have more in common than is usually acknowledged. As discussed below, he later develops this suggestion into the claim that while the two are alike in ways that are rarely recognized, the differences between the two are significant, and other than those that are traditionally acknowledged.

Chapters 2 through 4 make the case for expanding the physical base of the mind beyond the cranium. Chapter 2 includes a detailed account of recent research into the highly complex processing performed by extra-cranial neural networks, allowing Rockwell to conclude that

what we have learned about cognitive activity in the rest of the nervous system requires us to question the entire distinction between thoughts and sensations. If the retina and the skin are ‘thinking’, is there anything left of the nervous system that could be said to be ‘just feeling’? ... All the other neurons in the sense organs ‘sense’ by performing computations of the same fundamental structure as those in the so-called brain. This is why Churchland concludes ‘there is just as much room for conceptual variation and conceptual exploration at the perceptual level as there is at any other level of knowledge. (30-31, *quoting* Paul Churchland 1990: 355)

Similarly, Chapter 3 includes a detailed account of recent research into the role played by the extra-cranial hormonal system, with similar conclusions. Rockwell acknowledges that defenders of Cartesian materialism may try to fall back on the claim that “these various hormonal activities may *cause* mental states, but they do not *embody* mental states” (44). However, this simply brings us back to another unquestioned assumption of Cartesian materialism, namely “that there is a clear-cut line between what causes conscious experience and what embodies it” (49). Once we accept the fact that there is no such definitive boundary, two things follow: first, “the zombie problem becomes not only real, but scientifically important”, and second, “the hard problem [of consciousness] ... will always remain not just hard, but impossible” (*id.*). Chapter 4 addresses some of the philosophical issues (old and new) raised by the new scientific findings, and suggests that we consider expanding the acknowledged physical base of “the mind” (cognitive *and* conscious) beyond the boundary of the skin. “What I am claiming is that not only thoughts, *but also feelings and sensations*, must be seen as supervening on the entire brain-body-world nexus” (71). Rockwell questions the standard practice of assuming that a single cause is sufficient to produce any given effect and the related practice of assigning intrinsic causal powers to objects, but ultimately concludes that “*any given scientific specialty* must refer to intrinsic causal powers.... In other words, the borderline between objects and relations will shift depending on what one is talking about.... To say that certain properties are intrinsic is simply to say that for the moment we are going to refrain from analyzing them” (61).

Chapters 5-9 address some of the ramifications of the current unquestioning acceptance of Cartesian

materialism, and consider the implications of abandoning that position. Chapter 5 notes that “the idea that our brains are fully responsible for all of our conscious experiences actually passes for something like a necessary truth among most philosophers” (66) – this is the part that addresses those irritating “brain in a vat” counter-examples (66-69; also 113-15) – and Chapters 5 and 6 then explore the possibility that philosophers bound by this misconception are often forced into dualism/idealism or skepticism by the increasing evidence that the brain cannot, in fact, account for our conscious experience. Chapter 6 discusses the implications for the internalism/externalism debate in philosophy of language, proposing a theory of what Rockwell calls “middle-sized content” (93), and Chapter 7 provides a thorough re-assessment of the zombie problem together with further development of his position questioning the distinction between experiencing/thinking, subjectivity/objectivity, consciousness/cognition. Chapter 8 explores the latter issue in more depth, noting that many of the philosophical difficulties discussed previously “arise from [erroneously] assuming that concepts and experiences are the same sorts of things” (17). As discussed in more detail below, his position on this issue is not that thinking and experiencing are the same, but that they differ in ways other than those typically recognized. Chapter 9 explores “the Cartesian concept of error” (161), arguing that the discussion already provided drives us toward “a continuum theory of truth”, also discussed below. Rockwell concludes that “in the real world, the only choice we have is between theories whose acceptance leads to varying amounts of errors, which means that the truth of a theoretical system is a matter of degree” (166).

Cartesian materialism leads us astray because it “tries to single out one part of the brain-body-world nexus as the only true ‘seat of the soul’” (209 n 1), but a position can be materialist without making this mistake: “the brain need not be the only physical thing that the mind is identical with” (xiv). In his final chapter Rockwell describes Dewey’s version of such a position, noting Dewey’s observation that it is impossible to have experience without a body that interacts with an environment, and his conclusion (from this) that reality is “fundamentally a continuity, and most philosophical problems arise from artificially dividing this continuity into absolute dualisms” (180, citing Dewey’s 1916 *Democracy and Education*). Rockwell defends this position against the objection that it inhibits scientific progress, and then outlines his own explicitly Deweyan “dynamic alternative” to Cartesian materialism with an extended discussion of neural nets and dynamic systems theory. He concludes by acknowledging that nothing he has said can compel scientists (or philosophers) to abandon Cartesian materialism, noting with Quine that “any theory can be held true come what may if you are willing to make enough other adjustments in your beliefs” (206). However, for those philosophers willing to admit that philosophizing should be responsive to what we know (at a given time) about the physical reality of the world, he’s made a strong case.

Discussion. As noted above, Rockwell claims a number of philosophical contributions for his work, some more plausibly than others. For myself, the most valuable philosophical contribution was an utterly convincing demonstration of the subjective basis of any given ontology. It is not the world as it is that forces us to accept a certain ontology (or ontologies), but the needs and purposes that we bring to our interactions with the world. Certain needs and purposes are widely shared, with the result that certain things are recognized in almost every ontology currently in play (e.g. so-called “everyday objects”). This creates the illusion that such objects are “really real”, real in themselves in some kind of non-derivative fashion. The illusion arises from the wide-spread consensus on the reality of such objects, but the consensus itself arises from widely shared needs and purposes rather than a series of “independent verifications” of the existence of the object in question. That’s not to

say that such objects *aren't* real, but merely to say that they are no *more* real than other less-widely-acknowledged objects. As Rockwell points out repeatedly, the fact that these ontologies are subjective does not mean that they are idiosyncratic or that they are somehow illusory or erroneous. Chapter 9 presents an extended critique of the very concepts of illusion and error, noting how our (flawed) working assumptions about illusion and error prevent us from accepting the subjectivity of our own ontologies. There *is* an external reality that is relatively inflexible, resistant to our efforts to shape and navigate it. What is almost infinitely flexible are the conceptual schema that we construct in our efforts to shape and navigate that reality, and utilizing different ontologies for different purposes is therefore unobjectionable. An ontology that enables its possessor to achieve her purposes is exactly as “legitimate” as its success rate; there is no other appropriate standard against which to test it. This is not a new idea and Rockwell does not claim it as such. To the contrary, he places himself firmly in the pragmatist tradition, going beyond that to note interesting parallels in the works of Heidegger and other Continental philosophers typically ignored by the analytic tradition. Unlike some of his predecessors, however, his presentation is clear and convincing and that in itself was a pleasure.

As I said, for myself, this was the most valuable contribution in *Neither Brain nor Ghost*, but some of Rockwell's other suggestions are intriguing. Before I close, I would like to address three other contributions in slightly more detail, raising some concerns and suggesting avenues for further development.

(1) The relationship between mind and the brain-body-world nexus. There is a great deal of debate about the nature of the relationship between the mind and its physical base, and Rockwell never really enters the fray on this topic. Most of the debate until now has simply assumed that, whatever the nature of that relationship, the physical base is the brain (Lynne Rudder Baker is a notable exception). Rockwell is primarily interested in taking aim at this assumption, and promoting his own claim that the physical base of the mind is in fact the brain-body-world nexus. More specifically, he says:

The brain dwells in a body, which in turn dwells in a world, and everything that happens to the brain is dependent on the causal relations that bind the brain-body-world together. I am claiming that it is these kinds of causal relations that the mind supervenes on, not just the relationships that exist between the neurons in the skull. (71)

He makes no claim that the brain is not *necessary* for mental experience (though it seems that the research surveyed at the beginning of the book may entitle him to that claim, in certain limited cases), and no claim that it is not sufficient for *some* mental experiences. Rather, he claims that the brain is not sufficient to account for *all* mental experience. The causal relations that unite the brain-body-world nexus, however, *are* sufficient and thus constitute the supervenience base for the mind. I have one concern and one regret about Rockwell's development of this position.

First the concern: At times it seems that Rockwell is suggesting that the entire supervenience base of the conscious mind is itself conscious, which is highly counter-intuitive. I had originally dismissed this thought, assuming that it arose from somewhat incautious wording, but the suggestion arises repeatedly and it thus seems worth noting. Rockwell is carefully clear that he's not claiming that the *parts* of the supervenience base are conscious:

because consciousness is a product of a system, it is also possible to designate parts of that system that are not conscious. Even mind-brain identity theorists will acknowledge that the individual neurons are not conscious. Similarly, *the claim that the brain-body-world nexus is conscious* does not imply that all of the parts of that nexus are conscious. It does imply, however, that each of these objects plays a role in constituting our conscious experience.... (104)

So *none* of the parts of the nexus— the tree, the light, the body, the brain – will be conscious in isolation. This is the major thrust of his claim about the insufficiency of the brain to account for the existence/emergence of mind: even the brain is not conscious in the absence of an environment with which to interact. However, in the italicized language he speaks not of “my” consciousness or the consciousness of any specific person but instead says that the brain-body-world nexus itself is conscious. Remember that this nexus extends beyond the limits of the body to include portions of the external world – what Rockwell refers to as the individual’s *umwelt*. He also says, “When I say that consciousness emerges from this causal network, I don’t mean anything spooky. *I just mean that the entire causal network will be conscious*, but not any one part of it” (85, emphasis added). His claim is not just that objects outside of the individual are causally necessary for consciousness, but that they *embody* consciousness. Consciousness “exists” (if that is the word) beyond the confines of the body. This reading is further supported by his analogy to gunpowder: “When we say that a causal power is intrinsic to a substance, we are also saying it occupies the same space. Isn’t the explosiveness of gunpowder present in all of the gunpowder?” (73) So the causal powers usually taken to be intrinsic to the mind – intentionality, consciousness, etc. – are again, on this reading, present throughout the physical supervenience base ... which is the entire brain-body-world nexus. This is a fascinating claim, coupled as it is with plausible empirical support. It may be that Rockwell does not intend to take such a radical position, but that simply raises the question of what position he *does* intend to take. Given his relentless demolition of all the traditionally recognized boundaries – including the boundary of the skin – how does he identify the *entity* that is conscious? Where are its boundaries? If the conscious entity is coextensive with its *umwelt* – as suggested by the language quoted above – then we’ve lost what seems to be a valuable distinction between “myself” and “my world”. The claim has interesting implications for our conceptions of agency and personhood.

Second, the regret. Given the extensive work Rockwell has done, I’d have liked to hear something about how he understands the relationship between the mind and the mind-body-world nexus. “Supervenience” is a kind of non-answer, as it leaves the mechanics attractively blank. Among others, participants in the debate have suggested articulating the mechanics in terms of the determinate-determinable relationship (Yablo 1990), constitution (Baker 2000), and emergence (O’Connor 2005). From Rockwell’s limited discussion it sounds like he’s committed to the claim that the relationship centers around a robust kind of two-way causation, and the alternative that highlights causal relations in this way is emergence. Rockwell often speaks of mentality in terms of “emergence”, but he also make frequent reference to constitution and doesn’t seem to be using either term in an especially technical sense. Emergence is initially attractive as a theory of mind, but I have yet to find an account that spells out the details in a thoroughly plausible way. It looks like Rockwell may have the materials he needs to articulate that more attractive theory of emergence, and I would have liked to see him do it (for emergence, or whatever theory he in fact embraces).

(2) A continuum theory of truth. In most popular and philosophical usage, truth is a binary property. A properly articulated statement is either true or false, and any “gray areas” in the middle are the result of an improper articulation rather than any malleability in the fundamental property of truthfulness. Recent developments in the theory of vagueness open up a little bit of room for gray areas, but only for those concepts like “baldness” and “heap” that lend themselves to it; vagueness theory does not take aim at our understanding of the world itself or our understanding of truth itself. Rockwell suggests that his work drives us to accept a new theory of truth itself: a continuum theory of truth, which recognizes that “truth” comes only in degrees. “It is widely believed (I think correctly), that the connectionist architecture of neural networks is a more accurate depiction of how our minds work than the computer-based metaphors that dominated early cognitive science... Those of us who take the connectionist view seriously cannot ignore the fact that it provides further evidence for a continuum theory of truth” (174, 175). As a result, “human knowledge undergoes a growth process that might be fancifully described as becoming truer and truer without ever reaching ‘true,’ just as we can travel further and further without ever reaching ‘far.’” (175)

The claim as stated seems somewhat overblown. First, it is only relevant to entire systems – to theories rather than to individual statements. Within the bounds of a given theory, individual statements are still fully capable of being entirely true or entirely false in exactly the manner we would usually expect (as he himself acknowledges with his delightful example of a medieval apothecary who is mistaken about whether or not they are out of unicorn horns – p. 171). Second, in this case as in most others, we have a choice between accepting a sharply revisionist account of some treasured concept or simply accepting that less of the world answers to the application of that concept than we had previously believed. In suggesting that his work pushes us to accept a continuum theory of truth, Rockwell implies that he has done the conceptual work necessary to force us to revise our understanding of the concept, but he has not. Concepts have both an intension and an extension, and his work has implications only for the latter. Rockwell has given us no reason to alter our theory of truth as a binary property (though see Oddie 1986 for work that *does* push us away from this position). If anything, Rockwell’s work emphasizes the need to restrict our use of the word and the concept to those occasions when it actually applies: we would be severely handicapped if we were unable to distinguish between those things that are “true” and those things that we merely treat as such because it is momentarily useful.

(3) Cognition and consciousness. As previously mentioned, Rockwell suggests both that thinking and feeling have more in common than is usually acknowledged and that the differences between them are other than they are traditionally taken to be. Among other things, he suggests that each owes primary allegiance to different physical systems in the body, that sentience is primary, and that we might do better to try to understand cognition in terms of sentience than the other way around.

Rockwell’s work demonstrates that neuroscience has moved blithely beyond the philosophical debates to firmly establish that “there are cognitive processes that are non-linguistic” (127). There really *is* a kind of “knowing how” that is retained and implemented in a non-linguistic way by systems other than those that process linguistically mediated knowledge.

Even those who believe that a language-of-thought theory is the best description of higher cognitive processes acknowledge that connectionism successfully implements

‘lower’ processes like perception and motor control. This means that no language-of-thought theorist denies that there are many activities that are describable as cognitive in some sense that is clearly not linguistic. The controversy between language-of-thought theorists and connectionists is over whether connectionism can eventually reduce or eliminate a language of thought. No one is claiming that things could go the other way around.... (128-29)

The upshot is that the overall system from which the mind emerges

consists of two distinct but closely related subsystems, each of which is responsible for a different kind of awareness. One sort of consciousness enables us to occupy the logical space of reasons, explanations, and communication. The other enables us to perform the kind of discriminative signal processing manifested by rats and amoebas, and modeled by connectionist nets. The first kind makes possible the sort of awareness that is a linguistic affair. The second kind makes possible what Dewey calls experience and Sellars calls sensations. (129)

The widely acknowledged qualitative difference between cognitive, linguistic mental activity (“thinking”) and non-cognitive, non-linguistic mental activity (“feeling”, “experiencing”) can thus be accounted for by their different points of origin. In philosophical usage we often conflate these two phenomena in discussions of mentality, carelessly using the three very different concepts of cognition, consciousness, and the mind as if they were interchangeable. More importantly, most philosophers working in the field have treated these three concepts as if their real-world manifestations were identical or inseparable, with unfortunate results in discussions of intentionality, agency, and meta-ethics. Rockwell’s work provides important empirical and philosophical support for the claim that this is mistaken.

Thought, cognition, and consciousness have traditionally been assumed to be synonymous, or at least coextensive.... But there is no reason to assume that these ideas will remain inseparable forever. We might end up concluding that there is a distinctive kind of functional noncognitive activity that is consciousness.... (43)

He also asks, “Is the mind identical with consciousness or with cognition, given that the two might be separate? The data may force us to ask these questions, and the presuppositions that science has adapted from common sense could hinder our ability to answer them.” (44)

So Rockwell first provides a kind of scientific justification for the intuition that feeling and thinking, while both clearly “mental”, are just *different*. He then challenges the tradition that, to the extent it differentiated between the two at all, has treated feeling as a kind of bastard child of mentality. Qualitative experience has always been a nuisance or an embarrassment for those philosophers who focussed on cognitive processing as paradigmatic of the mental. As Rockwell puts it,

Throughout its history, philosophy has concentrated on understanding the architecture that made rational thought possible: that is, language.... Felt experiences were considered to be thoughts that were deficient in some way: They were confused thoughts, waiting to be brought into focus, or atomistic bits of thought waiting to be

assembled into scientific theory. Dewey's radical claim was that although 'knowing is one mode of experiencing (Dewey 1910/1997, p. 229), experience in general had more fundamental rules of organization that were all its own. (127)

Until very recently, it was usually assumed that both sensations and thoughts were constituted by processes that were essentially the same and essentially linguistic and propositional. Positing sensations-qualitative experience as being significantly different from concepts-language sounded mystical and ineffable, because the sole model we had for cognitive activity was a linguistic one. Dewey made an important contribution by showing the advantages of assuming that thought and experience different processes that were cognitive in different ways. (127)

Ultimately, then, it seems likely that philosophers truly interested in mind (and not just in "thought") need to address both thinking and feeling, cognition and consciousness, each in its own right as a distinctive phenomenon to be accounted for. And if the two are separate then it is entirely plausible to suggest that they are separable – another issue that requires more attention than it has received (though Horgan and Tienson 2002 and Wilson 2004 are notable exceptions). Finally, it may well be that the overwhelming focus on thinking/cognition has interfered with our ability to account for the phenomenon of mindedness: feeling/experiencing may well be more basic, and thus hold the key to a more satisfying theory of mind than any yet proposed.

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